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EAR JEWELRY SYSTEM WITH
ASSOCIATED GAUGES FOR OPTIMAL ADAPTATION OF THE
EAR JEWELRY ON THE EAR LOBE

[0001] The invention relates to an ear jewelry system with very special type of ear jewelry which distinguishes itself through the special fastening system. Furthermore, the invention includes gauges so that the ear jewelry becomes individually suitable for an ear lobe, which is an important pre-requisite for wearing comfort of the ear jewelry. This system is suitable for fashion jewelry as well as for pure ornamentation.

[0002] In the conventional fastening of ear jewelry, basically two types of fastening are distinguishable. According to the first type, the ornament can be attached to one pricked hole in the ear lobe. Occasionally other parts of the body are also perforated in similar fashion, for example, the edges of the ear or wings of the nose to fix an ornamental ring thereon. The piece of jewelry or just the ear jewelry then shows a needle, which is pushed through the hole and is secured at its tip with a catch, somewhat in the shape of a safety-clip, to prevent the piece of jewelry from falling out. This catch mechanism is often unappealing. It has to be of a definite size so that it can be used effortlessly and, therefore, it remains visible from behind in many cases, which does not give the right impression.

[0003] The second type of fastening is provided in the jewelry itself and is clipped on the ear or on the wing of the nose. The ear jewelry, known as ear clips, consists of, for example, a clamping arrangement, where both the clamp parts are pressed against each other by a spring. For putting on the ear jewelry, the ear clips are opened by spreading apart both the clamp parts against the spring force, and the ear jewelry is pushed over the ear lobe and then both the clamp parts hold the ear lobe, which lies in between them. The ear jewelry is held onto the ear lobe by means of static friction. The bigger and heavier the ear jewelry is, the stronger must be the contact pressure of the clamp parts and with that the spring force to make the ear jewelry stick securely on the ear. If the spring force is too small, the static friction is too less and in case the head shakes abruptly, the jewelry would slip off the ear. This fastening method is, in fact, practical for putting on and off the ear jewelry but has the disadvantage that it causes almost always some pain, especially when the jewelry is worn permanently. The clamping arrangements mostly are of standard construction, which give rise to such contact pressure that every current type of jewelry is to some extent held securely. After a couple of minutes of wearing the jewelry, the pain, caused by the clamps, subsides, so that it no longer troubles excessively. If, however, worn for a prolonged period, invariably the pain becomes perceptible again. Till today, there is no ear jewelry, which is stuck on the ear lobe with spring force, which allows a pain- free and reliable wearing for a prolonged duration. The heavier and bigger the attached jewelry, the more serious is the problem. Wearing the ear clips so far has been, without exception, associated with more or less a strong sensation of pain; that is why many persons give up on wearing such type of ear jewelry, although they find the same attractive on aesthetic grounds and would have loved to wear them.

[0004] It is, therefore, the object of the present invention to create an ear jewelry system, which ensures that the ear jewelry remains simple in its operation while putting it on or off, further does not trigger a feeling of pain for bigger and heavier jewelry even when worn for a long period and moreover deploys a fastening system, which can be produced in a more cost effective and simpler way than the

conventional spring loaded clamping arrangement and which – after the ornament has been put on – is not visible from any side. In an embodiment, the system should offer additional security against inadvertent or conscious removal of the ear jewelry by thieves. According to the present system, the ear jewelry should be individually selectable according to the respective ear lobe of the wearer, wherein the standard sizes are selectable for the different sizes of ear lobes, conforming straightaway then to the respective ear lobes.

[0005] This objective is fulfilled through an ear jewelry system with associated gauges selected from separate gauges for optimum fitment of the ear jewelry on the ear lobe, which distinguishes itself thereby that the ear jewelry has a U shaped recess, which, with its internal width or the internal width of an insert, to be placed into it from below is defined to be pushed on the ear lobe, stretched for the purpose of fitting, thereby taking up exactly the thickness of the stretched ear lobe, wherein the suitable internal width can be decided with the help of an appropriate gauge from a multiplicity of separate gauges with respective mouths having graded internal widths and tongues having thickness of the respective internal width, so that by a measurement of the ear lobe to be fitted in stretched condition with the help of these separate gauges, the suitable internal width can be decided of the U shaped recess of the relevant ear jewelry or of the insert to be inserted from a series of ear jewelry or series of inserts with U shaped recesses of different internal widths.

[0006] The core of the system lies therein, that firstly the thickness of the ear lobe is measured individually in stretched-through-pulling condition and secondly the ear jewelry, having a recess which conforms exactly to this thickness of the ear lobe decided by the stretched condition, is held purely through adhesion force on the ear lobe after the ear lobe swells back again when the ear jewelry has been put on and the pulling force has been removed. The individual measurement takes place preferably with a standardised scale, so that an ear lobe with a known unit of measurement and in stretched condition straightaway can be matched with an ear jewelry of appropriate width of the U shaped recess or its insert and the jewelry is

held securely on it after the stretching is removed. This system for holding the jewelry on an ear lobe is not visible from outside, and thus, the holding system is totally integrated in the inside of the jewelry. It goes without saying that the system can be implemented merely as support for attaching the actual ear jewelry .

[0007] An example of implementation of this ear jewelry system is shown in the drawings and the system with few pieces of ear jewelry as example and also gauges associated with the system comprising calibrated separate gauges are described below and the functioning of the system in all details is explained.

Figure 1: The ear jewelry system with a single piece of ear jewelry and an associated gauge comprising separate gauges.

Figure 2: A series of ear jewelry pieces of similar type with U shaped recesses of different internal widths and next to it the respective appropriate separate gauges.

Figure 3: A piece of ear jewelry according to this system in an enlarged view with one of its U shaped recess.

Figure 4: Measurement of thickness of an ear lobe, to be fitted with an ear jewelry, the lobe being in a stretched condition through pulling.

Figure 5: Determination of a piece of ear jewelry which would conform to the measured thickness of the ear lobe.

Figure 6: A piece of ear jewelry with appropriate insert for matching with measured thickness of an ear lobe in stretched condition.

Figure 7: A piece of ear jewelry, set with stones, pushed over an ear lobe.

Figure 8: A piece of ear jewelry in the shape of a creole, pushed over an ear lobe.

Figure 9: A piece of ear jewelry as per this ear jewelry system with an enlarged view of its U shaped recess and an additional device for security against slipping off of the ear jewelry.

[0008] Figure 1 shows the ear jewelry system with the essential parts, namely a single piece of ear jewelry 1 and below it the associated gauges 2 comprising a number of separate gauges 3. The piece of ear jewelry 1 here makes for a plain ornament, made out of a suitable material, which may be precious metal, stainless steel, aluminium, plastic or even stone, wood or glass. In the shown sketch, the ear jewelry is an ellipse shaped disc of about 2 to 3 mm thickness, about 25 mm length and 15 mm width. From this elliptical disc, from its pointed side along the length axis 4, a U shaped recess 5 is taken out. The recess 5 has a fine toothed (serrated) surface, so that a complete row of longish barbs are formed. The barbs can also serve as receiving guide for a correspondingly built insert 25, which is held back by the barbs or for hollow ear jewelry piece 1, the barbs can be partly opened, so that the swollen -again ear lobe finds more room and can anchor itself further inside the piece of ornament. As alternative, the recess can also have smooth or etched rough inner walls 6, similar to the rubbing surface of a match box. This piece of ear jewelry 1 can be made out of solid material or can also be a hollow body. The latter can so come about that the piece of ear jewelry 1, depending on the production technique, first remains open inside on the side facing the recess 5 and these open sides afterwards are closed with the help of a thin material strip, either by soldering, welding, click fixing, pushing in or sticking of suitable band shaped strips. In accordance with this special ear jewelry system, as speciality, the internal width 7 of the recess 5 must match exactly with the thickness of an ear lobe, and for that matter with the thickness of an ear lobe in its stretched condition, when it is pulled down with a hand along its length. The ear jewelry is therefore produced in a complete series, wherein the individual pieces 1 of a series differentiate themselves through the measurement of their internal widths 7.

The ear jewelry pieces 1 are therefore produced in a complete series of graded widths 7, in the same manner as finger rings of a specific ornament type are produced in different sizes or diameters. The U shaped recess 5 on the ear jewelry is about 10 mm to 15 mm long and their internal widths 7 measures between 2 mm to 8 mm. Most of the wearers of the ear jewelry would require a width 7 between 4mm and 6mm. The narrowest widths 7 are used by young girls when they are children and the biggest widths are used by corpulent persons. A series of an ear jewelry type can then be produced in steps of internal widths 7, with widths of 2, 2.5, 3, 3.5, 7.5, 8 mm. Naturally still finer steps can be selected. Below the ear jewelry 1 in Fig. 1, an appropriate gauge 2 is illustrated. This consists of a number of loose separate gauges 3, which have in each case a mouth 8 and a tongue 9 and which are shown here in a stack. These separate gauges can have a hole 10, so that they do not get lost and then they can be held together by a wire ring 11, which passes through the holes 10 of all the separate gauges, whereby these are arranged in a sequence according to their graded width 12 or sizes. For each separate gauge 3, the internal width 12 of the mouth 8 corresponds exactly with the width 13 of the tongue 9. At the top and bottom, the separate gauges are provided with a scale 28, that means with fine lines 29, which are, for example, spaced apart at 1mm. Besides, through every separate gauge 3 extends a slit, and on one side through its mouth 8 a slit 30 and on the other side, through its tongue 9 a slit 31, which extends right up to the tip of the tongue and is therefore open there. The function of the scale 28 and the slits 30,31 will be explained in relation to the description of the functioning of the System. Few precise gauges can be punched from a paper board or can be injection moulded in a plastic part, wherein the separate gauges lie next to each other. Gauges so produced lend themselves well for distribution in the dispatch business and for occasional use of the jewelry in private households, as these are very reasonably priced. Similar flat gauges are already in use for determination of ring size of the finger rings.

[0009] For a better understanding of the ear jewelry system, Figure 2 shows all the components of a possible complete set of a type of ear jewelry. It comprises then a complete series of ear jewelry pieces 1 of the same type with U shaped recesses 5 of

different internal width and separate gauges 3, appropriate for these different widths. The separate gauges 3 are preferably made out of plastic or wood, so that they become light and possess a small heat capacity and thermal conductivity, with the intention that when they are put on an ear lobe, as is described later, practically no heat transfer takes place. Putting on an ear lobe, which is to be measured, is much more pleasant for the sample person than it is with a gauge made of steel, which would immediately take away much heat from the ear lobe. The ends 14 of the gauges 3 on the open side of their mouths 8 are rounded, so that these do not prick or scratch an ear lobe while being put on. As is indicated in the three lowermost separate gauges 3, their mouths 8 can also have a definite inner form ; this is to take into consideration the fact that all the ear lobes over their length do not have a uniform thickness, but become thicker or thinner somewhat towards their bottom etc. Even then the inner sides of these recesses can be provided with fine barbs (not shown here), as shown in Figure 1, or these inner sides can otherwise have a rough surface. A set of separate gauges 3 can be made available for every ear lobe form. In similar fashion, also the inner shape of the recesses 5 on the pieces of ear jewelry 1 can be made differently, as is indicated with hatched areas in the three lowermost ear jewelry pieces 1.

[0010] An enlarged view of a piece of ear jewelry with its U shaped recess 5 as per the ear jewelry system is shown in Figure 3. The inner walls 6 of the U shaped recess 5 can remain free depending upon the material quality or are fitted with a rubber foil or a rubber like foil material 15, for example a foil material made of Neoprene, for which again a rough surface or a surface provided with barbs are helpful. The material to be used consists of a backing fabric made of 100% polyamide and is coated with a stretchable raw rubber. The inner walls 6 of the U shaped recess 5 are then fitted with one such foil 15 made of this or similar material through lamination. Such foil material has high frictional resistance against the skin and guarantees a firm hold of the jewelry put on an ear lobe. As shown in Figure 3 by means of dashed lines, the foil 15 itself can be shaped to be a part of the jewelry in a manner that it towers above the recess 5 on one or both sides and makes, for example, a fan shaped decoration 32.

In another variant, the recess can also be coated with a rubber foil, having a special surface with so called nano humps. One such uses the adhesion effect, which brings forth the feet of Geckos, which, as is well known, makes it possible for lizard like animals to move over polished glass walls or ceiling, wherein their feet engage directly with the molecular structure of the wall. The feet of these animals have millions of finest hair at the sole of the feet, from which each of them fans out to the tip in thousands of small buds. The brush like construction of the hairs brings the Gecko- feet so close in contact with the foundation that attractive forces, which usually are present between individual atoms and molecules, work – the so called Van der Waals forces – that is forces due to electrostatic interaction between atoms or molecules, when the spacing amounts to few atom diameters. At the University of California, Berkeley it was successful to produce rubber pieces with similar surfaces, which had nano humps in them.

(Proceedings of the National Academy of Sciences, Online Publication, dated 27th August, 2002; www.pnas.org/cgi/content/abstract/192252799v1).

[0011] It is shown in Figure 4, how the thickness of an ear lobe 16 is measured with the help of a separate gauge 3. As shown here on a right ear 17, the left hand 18 catches with index finger and thumb the ear lobe 16 and pulls it down as is indicated by the arrow, so that it stretches and becomes thinner thereby. Then the right hand 19 pushes forward a separate gauge 3 with its mouth 8 or its U shaped recess or its ends 14 over the ear lobe, which has been thus stretched. Simply one such separate gauge 3 is chosen, whose mouth 8 can be put straight over the stretched ear lobe 16. If the left hand 18 lets go the ear lobe 16, it can again retract and its thickness swells up a little bit. After this, the separate gauge 3 is held with accurate registration and securely on the relaxed ear lobe 16. With a little pull downwards of the separate gauge 3, the firmness of the seat can be tested. The scale 28 only permits to determine, how far the mouth 8 of the separate gauge 3 can be put over the ear lobe 16, because every ear lobe is not equally long. Further, a needle can be pushed through the slit 30, so that, if need be, it can be pushed through the hole 33, which is already available in the ear lobe. The position of the needle can afterwards be read

off the scale, so that it can be precisely defined on the ear jewelry later, where a safety needle must be positioned. When these measurement steps have been carried out, the ear lobe is again pulled down with one hand, so that it stretches and with the other hand then the separate gauge 3 can easily be withdrawn from the ear lobe.

[0012] In Figure 5 it is shown how the separate gauge 3 is now used to determine the piece of ear jewelry, which would match with the measured thickness of the ear lobe. Its tongue 9 is used to find out the right size of the ear jewelry piece, or the right internal width 7 of the recess 5 on one such ear jewelry piece as per the system or for the determination of an insert with the right width, which, depending on the configuration, can be placed in the recess 5 of the ear jewelry. It is with advantage that the U shaped recess 5 on the piece of ear jewelry 1 is lined with a rubber or rubber like foil, or its inner surfaces are roughened by etching, so that they have the similar roughness as on the rubbing surface of a matchbox. The recess 5 of different ear jewelry pieces 1, which are thus coated or treated, are now pushed over the tongue 9 of the suitable separate gauge 3, whereby the recess 5 should be able to be pushed straight over the tongue 9. When this happens, the matching ear jewelry piece has been found. Afterwards it is put on the ear lobe, wherein the ear lobe is again pulled down with one hand, so that it is stretched and the piece of jewelry 1 with its recess 5 is pushed over it. The jewelry piece 1 is pushed on the ear lobe in its stretched condition, and thereafter the ear lobe is let loose, so that the tension is released and it returns to its relaxed state with little amount of swelling. A secure and highly comfortable mating seat for the ear jewelry piece, which has been put on in this manner, is thus ensured. As shown in Figure 1, when the surfaces of the inner sides of the recess are provided with barbs instead of a plastic insert, the jewelry piece holds even firmer because then the swollen up ear lobe snuggles up against these barbs.

[0013] In Figure 6, a piece of ear jewelry 1 with an appropriate insert 25 is shown, the insert having on its part the same width, which matches with the measured thickness of the ear lobe. The insert shows here springs 34 with a dovetailed profile, which fit

into the same grooves 35 in the recess 5 on the jewelry piece 1, so that the pushed - in insert is held firmly in the recess 5. Instead of grooves 35 and springs 34, holes and knobs can also be used, which engage in each other, or sidewise barbs on the insert 25 and the recess 5, which, when the insert is pushed in, engage with each other. The ear jewelry 1 here is provided with a horizontal slit 20 of approximately 1 mm width, which is used for putting in a safety needle; safety needles generally have a thickness of 0.8 mm. The associated insert 25 also is provided with such a horizontal slit 26, which however is closed due to the rubber like quality of the insert and is opened only when the safety needle is put through it, which is explained later. The inner sides of the recess on the insert 25 can be provided with barbs, same as already shown in Figure 1, to increase its hold on an ear lobe.

[0014] In Figure 7, a piece of ear jewelry, pushed in this manner on an ear lobe, is shown. Essential is the recess on the jewelry piece as well as the width of this recess or the width of an insert, pushed into the recess. This width is made to match quite individually with the thickness of an ear lobe and is basically measured and determined on an ear lobe, stretched through pulling. As shown in the Figure, the bottom part of the ear jewelry can be shaped and formed as per one's liking. In the example shown here, the ear jewelry is made overall bell shaped and is fitted with four stones. It is just as well that an ear jewelry can be made as creole, as shown in Figure 8, or it can be made as a holder or support for attaching the real jewelry.

[0015] An example of pure jewelry is shown in Figure 9. This ear jewelry can be made from Titanium, for example, and is then especially light. On the other hand, it can also be made out of Gold or Platinum or out of Silver and can be subsequently gold plated and fitted with Diamonds 37. In that case it is especially valuable. For such ear jewelry, it is advisable not to carry it on the ear lobe only through adhesion effect but also to secure against it getting pulled off or slipping off. For this purpose, the ear jewelry is provided with a pocket shaped slit 20 starting from its one side, as was mentioned for the ear jewelry in Figure 6, the slit extending over the recess 5 and building a pocket there, as is indicated by the dashed lines. The inner walls of the

recess 5 are coated with a rubber like, foamed foil 15. This ear jewelry can be secured on the ear lobe, when the ear lobe of the wearer is pierced, which is indeed the case with many ladies or can be brought about, if need be. Yet in comparison with the conventional jewelry, which are worn on pierced ear lobes, the holder of this ear jewelry functions quite differently. In conventional jewelry, the weight of the ornament essentially hangs from the needle, which is inserted through the hole of the ear lobe. When someone wears relatively heavy ear jewelry over many years, the holes in the ear lobes become larger and the ear lobes often become shapeless. In the proposed solution given here, however, the needle 21 serves only as safety for the ornament, not for its prolonged holding on the ear lobes. In the manner, described in detail above, the ear jewelry is made to conform to the ear lobe, stretched through pulling, and for putting it on, is only pushed from below with its U shaped recess over the ear lobe, which is stretched by one hand, and even with the side with the slit 20 turned against the head. When the ear lobe is let loose, that is after the tension is released, the ear lobe regains its shape and swells somewhat, through which the ear jewelry is adequately held. In principle, the ear jewelry could have been worn in this fashion. For safety, additionally a needle 21 with a grip head 24, which itself can be built as an ornament, is inserted from the open side of the slit 20; it passes through the foil 15, right through the recess 5 and thus through the hole in the ear lobe, and after that through the foil 15 at the other side of the recess 5 and then in the slit 20 there. The needle 21 can be placed anywhere over the cross region 22 of the slit 20, depending upon the position of the hole in the ear lobe. The exact location of the needle 21 is likewise determined with the help of the separate gauge. To this end, the separate gauges have similar slits 30,31 and also a sidewise scale 28 with fine lines 29. When the separate gauge 3 is pushed in, the safety needle 21 is put through the existing hole on the ear lobe and its location can be read off the scale 28. The separate gauge 3 is now placed in recess 5 on the jewelry piece 1 and in the measured position then a hole can be drilled through the jewelry piece or if the clear slit 20 is at one's disposal, the correct position of insertion can be marked, and afterwards, the needle 21 can be inserted at this position through the slit 20 and the foil 15. The appropriate needle 21 for the jewelry system has preferably a ball shaped tip 26. This expands

the foil 15 when it is passed through the same and prevents afterwards the slipping off of the needle 21 as the ball shaped tip works like barb. The same thing happens when the recess 5 on the piece of jewelry is fitted with an insert 25 of the measured width, the insert on its part having a slit 27 for putting in the safety needle 21, as is shown in Figure 6. The advantage of this system with the slit 20 also lies therein that the needle 21 can be moved to certain extent in a step less way within the slit 20, which means that the position of the needle 21 at the jewelry piece can be made to match precisely with the hole on the ear lobe of the wearer. In every position, the needle pricks through the foil 15 or the insert 25 and the jewelry piece is consequently secured. The jewelry 1, so secured through the needle 21, is, however, attached only to the recess 5 while being worn. No force acts on the needle 21. When the jewelry 1 is worked upon by higher forces other than merely its own weight and pulled on the ear lobe, the needle comes into use during wearing. Then the piece of jewelry 1 remains hanging on the needle, after it has been first moved at the front end 23 of the slit 20. This needle 21 even allows a height adjustability of the ear jewelry on the ear lobe. The needle can be put in at any desired place within the slit 20 through the foamed foil 15 or the slit 27 on the insert 25. Correspondingly, an ear jewelry with its recess 5 can be pushed over partly over an ear lobe and then the needle is put in through the foamed foil 15 or the insert 25 at that place, where the hole on the ear lobe is. If the ear jewelry is so put on, it is held only partially by the recess 5 as a result of adhesion strength and a part of the holding force is taken over by the needle 21, which is driven twice through the foils 15 or the insert 25, resting on the ear lobe. These foil 15 or insert 25 moreover can be shaped like ornaments, wherein they project beyond the recess sidewise and take suitable forms there, looking decorative. The jewelry piece itself can have an additional hole 36, in which the safety needle 21 is kept when not in use and can be supplied from there. When required, say, during a sports activity, higher forces act upon the ear jewelry, the needle can be put on as safety whereas under normal circumstances, it is not required at all.

[0016] This ear jewelry and its system allow s a particularly comfortable and above all, pain free wearing of the jewelry, specially of fashion jewelry, which are, otherwise and

conventionally, fastened on the ear lobe by means of a clamping mechanism. The system also allows for carrying on with pure ear jewelry under additional safety by means of a needle, which is, however, not strained for normal wearing and, therefore, does not stress or stretch a hole on the ear lobe. The ear jewelry can also comprise a holder or support, which works according to this system and on which then the actual jewelry hangs. Of crucial importance for the correct functioning of the system is that the thickness of the ear lobe is determined in the state when it has been stretched by pulling it down and that the jewelry with its corresponding measured width of the recess is made to touch on the ear lobe in this stretched condition. Then the ear lobe is let loose, by which it regains its shape with swelling and then it holds the ear jewelry firmly as a result of adhesion force.

[0017] The separate gauges 3 of the Gauge 2 can be deployed with standardised sizes, so that an internationally acceptable standard for their internal widths and their scale is created. This standard would permit that for known ear lobe thickness in stretched condition, that is for known internal widths of the gauge and of the ear jewelry as well as for known position of the safety needle with the help of the readings on the scale, an ear jewelry can be purchased without trial and it fits perfectly straightaway.